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LIFE HISTORY STUDIES OF  
IDAEA OBFUSARIA (WALKER)  
(GEOMETRIDAE)<sup>1</sup>

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ABSTRACT

The ovum, first and final instar, and pupa of *Idaea obfusaria* (Walker) are described, with illustrations and photographs included. Larval habits are discussed and known food plants are given.

INTRODUCTION AND DISCUSSION

THE UNOBTRUSIVE GEOMETRID MOTH, *Idaea obfusaria* (Walker) usually is found listed as *Sterrrha punctofimbriata* (Packard) or *Lobocleta obfusaria* form *punctofimbriata* Packard. Evidence presented by D. S. Fletcher (1966) shows that the previously used generic name *Sterrrha* Hübner should be replaced with *Idaea* Treitschke. The correct application of the names *obfusaria* and *punctofimbriata* is presently unresolved.

This species ranges from New Jersey to Florida, west to Arizona. It is widespread, local and rarely common. In Missouri this is a multivoltine species; adults have been taken from mid June through July and again in September. The ova used for this life history study were obtained from a female collected at an ultraviolet light 10 July 1971, near Warsaw, Missouri.

*L. obfusaria* appears to be generally a low plant feeder eating both fresh and dried leaves. Larvae did equally well on red clover, alfalfa and goldenrod. Walnut, oak and elm were refused, but maple was accepted. Larvae were easily reared on an alfalfa-based artificial diet. Dr. C. V. Covell Jr. has reared Kentucky obtained ova on clover and dandelion.

The larva passes through five instars. The first and final instars are described and illustrated in this article.

The larva possesses amazing protective adaptations. It resembles a twig, shrivelled leaf or piece of bark in its natural setting. The mottled brown surface of the larva makes a near

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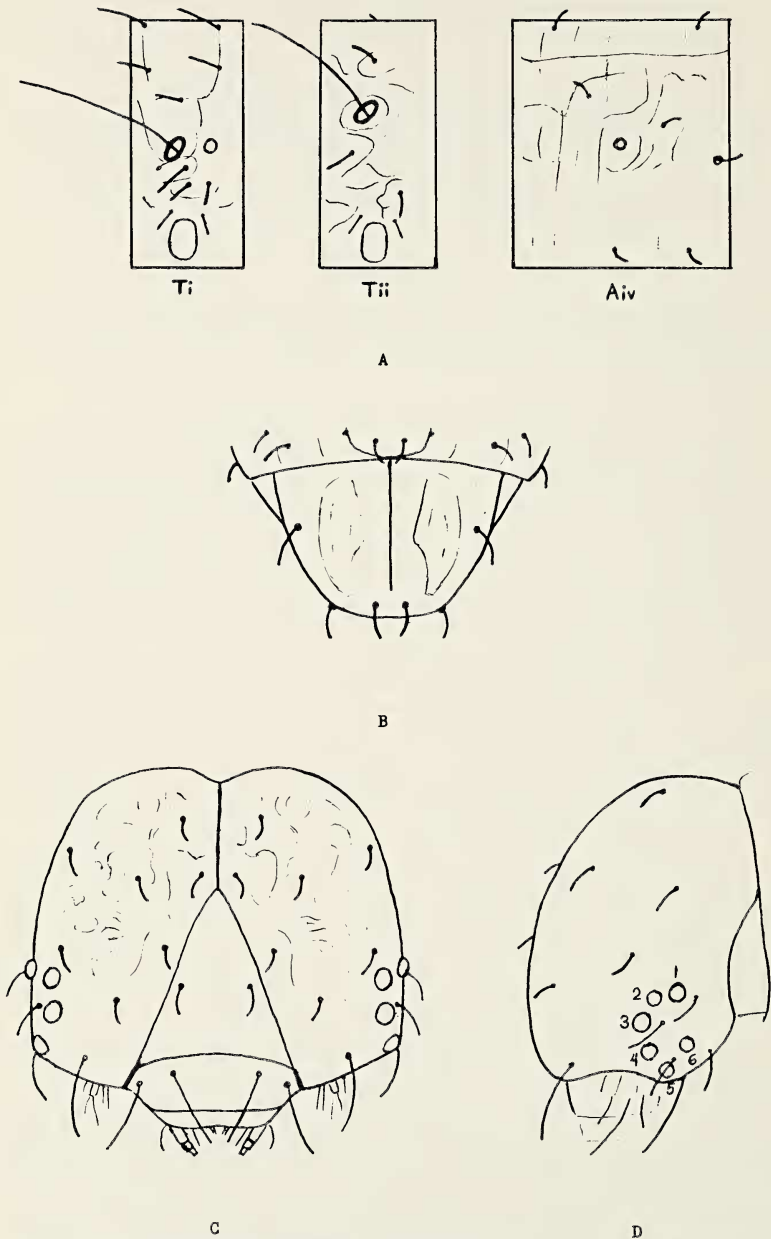


Fig. 1.—*Idaea obfusaria* (Walker), A, Setal maps of first instar larva. B, Anal plate of first instar larva. C-D, Head of first instar larva, frontal and left lateral aspect, 150X.

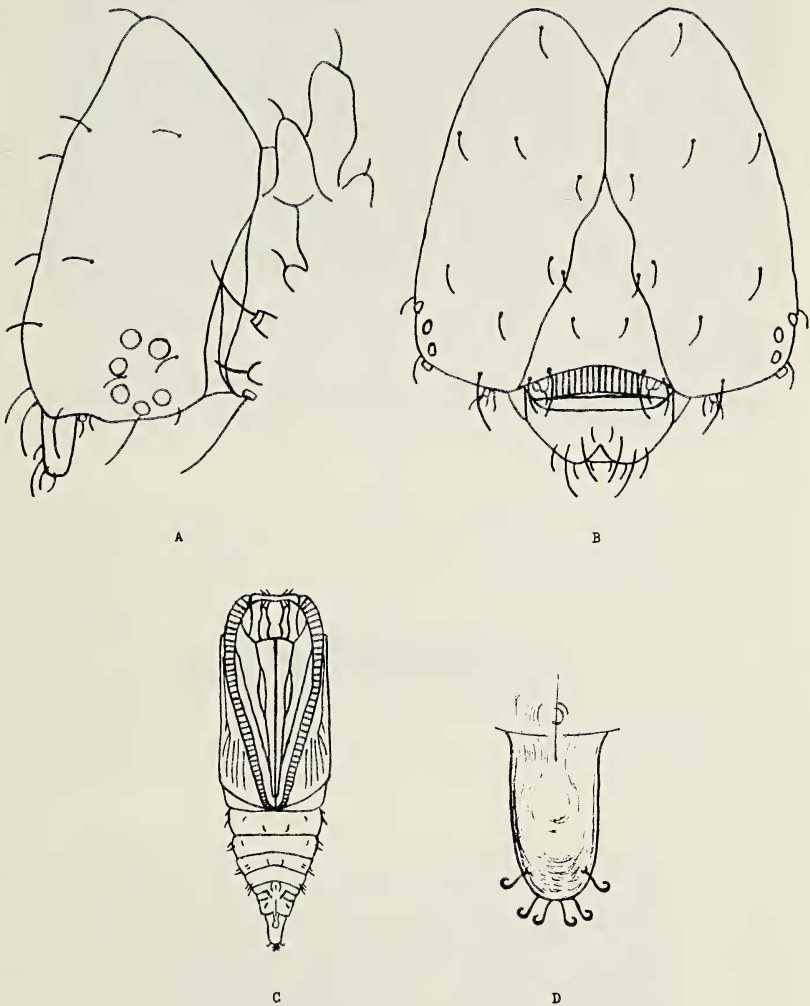


Fig. 2.—*Idaea obfusaria* (Walker), A-B, Head of final instar larva, left lateral and frontal aspect, 44X. C, Pupa, ventral aspect, 5X. D, Cremaster, 30X.



A



B



C

Fig. 3.—*Idaea obfusaria* (Walker), A, Ova, 50X. B-C, Mature larva, lateral and dorsal aspect, 3X.

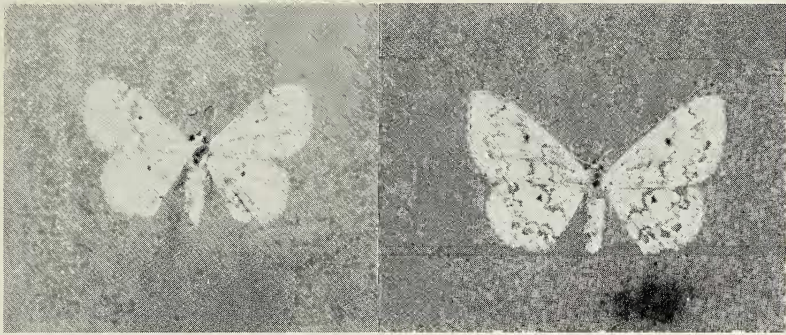


Fig. 4.—*Idaea obfusaria* (Walker), A, Male adult,  $1\frac{1}{2}X$ . B, Female adult,  $1\frac{1}{2}X$ .

perfect camouflage. The dorsally flattened and extended segments give it a cobra-like poise. When disturbed the larva becomes rigid and assumes an erect position; when touched the prolegs release, and it falls apparently lifeless. This inert state has lasted as long as 60 minutes. Because of the body shape modifications exhibited by this larva, no typical lateral surface is present. Therefore, in the following description the terms dorsolateral and ventrolateral are used to refer to areas above and below the serrated segmental edge.

#### DESCRIPTION OF STAGES

**OVUM:** Height: 0.55mm. Width: 0.40mm. Shape oval, slightly flattened; basal end smaller. Surface with minute indentations of irregular pattern. Color pale yellow with pink undertones. Ova were laid randomly, singly and in small groups. At the basal end of each ovum there is an adhesive stem by which it hangs. Eclosion occurs in four days.

**FIRST-STADIUM LARVA:** Length: 1.5mm. Width: 0.2mm. Head light orange brown, height: 0.23mm, width: 0.26mm. First thoracic segment white invaded by orange brown; remaining thoracic segments dark brown. Entire ventrolateral surface dark chocolate brown. Dorsolateral surface of abdominal segments dark brown and medium brown with a white W-shaped marking anally directed on each of the first four segments. Center of W not complete on fifth segment; remaining segments brown with cream coloring mixed in.

**FINAL-STADIUM LARVA:** Length: 16-18mm. Width: 3mm. Head colored in variegated shades of brown sprinkled with darker brown spots; texture rough and pitted; height: 1.3mm, width: 1.1mm. Ocelli 1, 2 and 6 translucent without color; 3,

4 and 5 translucent but dark brown. Dorsal surface flattened and extended with angle from mid dorsum to spiracles slight. Body sharply angled from spiracles to ventral center of abdomen. Dorsal view: body wide, strongly indented at segmental folds; outer edges of segments strongly serrated and bristle tipped; body tapers sharply at thorax and anal end; abdominal segments conspicuously wider than thorax; sixth segment angled down in striking contrast to other abdominal segments; prothoracic segment slightly overlapping the head with four projections topped by a seta and paralleled by a set of four smaller projections behind these. Dorsal surface color variegated in patterns and shades of cream and brown and peppered with darker brown. Ventrolateral surface with irregular bands and patterns of white, gray and browns running the length of the body, darker with more brown than dorsolateral area. Thoracic segments slightly darker than abdominal segments. The meso- and metathorax have a pair of dark brown blotches. Thoracic legs pale brown, cream colored at the base, arrayed with many long brown bristles. Abdominal segments 1-5 have a brown V-shaped marking approximately 1mm in width anally directed. Integument very noticeably wrinkled. Less white on remaining segments. Anal segment with several short spines, and an anal prong 0.35mm in length. Prolegs light brown and cream.

PUPA: Length: 8.5mm. Width: 2.5mm. Pupal surface glossy. Wing cases and first eight abdominal segments pale reddish brown. Intersegmental folds 6, 7 and 8 dark orange brown; final abdominal segments, including the cremaster, red brown. Cremaster with six hooks. Thorax pale orange brown. Head dull light brown. Eyes dark brown. Thoracic spiracles pale reddish brown; abdominal spiracles dark brown. The pupa is suspended in a weak silken netting. Imagines eclose in approximately 14 days.

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#### LITERATURE CITED

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